WHAT IS CLAIMED IS:

1. A gas propellant grain assembly comprising

at least two pie-shaped grain segments positioned on opposite sides of a line, each of the pie-shaped segments extending longitudinally along the line between respective first end portions and second end portions, and wherein each pie-shaped grain segment includes an inner edge portion adjacent the line and wherein the inner edge portion of each pie-shaped segment is spaced from the line between the first and second end portions forming a channel between the opposite pie-shaped segments.

2. The assembly of claim 1 wherein the at least two grain segments are a first pair of grain segments and further including a second pair of grain segments, wherein the grain segments in the first pair have a size different from a size of the grain segments in the second pair.

3. A gas propellant grain assembly comprising

at least first and second pairs of grain segments, each grain segment in a pair being substantially similar to the other segment in the pair; and

igniter leads extending from an ignition source, and wherein igniter leads are coupled to respective grain segments and wherein the ignition source is configured to ignite simultaneously the individual grains in a pair.

4. The assembly of claim 3 wherein grain segments in the first pair are symmetric with respect to each other.

5. The assembly of claim 3 wherein the grains in the first pair have a first configuration and the grains in the second pair have a second configuration different from the first configuration.

6. The assembly of claim 5 wherein the grains in the first pair have a different size from the grains in second pair.

7. The assembly of claim 3 wherein grains in the first pair are pie-shaped and the grains in the second pair are pie-shaped.

8. The assembly of claim 3 further including a third pair of grain segments having a size different from a size of the first pair.

9. The assembly of claim 3 wherein the grains in the first and second pairs of grain segments include respective end portions and wherein the assembly further includes a passage way between the first and second and portions.

10. A gas propellant grain assembly comprising a grain segment having first and second end portions and an interior portion, the end and interior portions contained in an inhibitor material so that once ignited the entire grain segment burns, and an igniter lead contacting the interior portion.

11. A gas generating grain assembly comprising:

a first grain element having a first size and shape and having a first inner portion;

a second grain element positioned on a side of a longitudinally-extending line opposite the first grain element having a second size and shape substantially similar to the first size and shape and having a second inner portion; and

wherein the first and second inner portions are spaced apart from each other.

12. The assembly of claim 11 wherein the first and second grain elements are arranged substantially symmetrically relative to each other and to the line.

13. The assembly of claim 11 wherein each of the first and second grain elements include respective surface portions covered with an inhibitor material.

14. The assembly of claim 13 wherein the inhibitor material is a material bonded to the respective surface of the respective grain element.

15. The assembly of claim 11 further including a cylindrical element extending along the line and between the first and second inner portions.

16. The assembly of claim 11 wherein the first and second grain elements are substantially pie-shaped.

17. The assembly of claim 11 wherein the first and second grain elements are a first pair of grain elements and wherein the assembly includes a second pair of grain elements wherein each grain element in the second pair is positioned on opposite sides of the line relative to the other and wherein the grain elements in the second pair are substantially similar in size and shape to each other and are not substantially similar in both size and shape to the grain elements in the first pair.

18. The assembly of claim 17 further including a controller for controlling a sequence of ignition of the grain elements.

19. The assembly of claim 18 wherein the controller is configured to ignite the grain elements in a pair simultaneously.

20. The assembly of claim 18 wherein the controller is configured to ignite one end of each grain element or both ends of each grain element in the pair as a function of the desired characteristic of the output.

21. The assembly of claim 18 wherein the controller is configured to ignite the pairs of grain elements either sequentially or simultaneously as a function of the desired characteristic of the output.

22. The assembly of claim 11 wherein the first and second grain elements are substantially symmetrical with respect to each other.

23. The assembly of claim 11 wherein the first and second grain elements each include fore and aft end portions and wherein the assembly

includes igniter elements on each of the fore and aft end portions of each of the first and second grain elements.

24. The assembly of claim 11 wherein the first and second grain elements each include end portions and interior portions and wherein the assembly includes igniter elements and each of the end and interior portions include igniter elements.

25. The assembly of claim 24 wherein the assembly includes igniter elements at each of the end portions of each of the first and second grain elements.

26. A gas generator assembly comprising:

a grain capable of being ignited for producing a gas and having first and second surfaces facing in different directions, and first and second igniter elements applied to respective ones of the first and second surfaces and configured in such a way that the first and second igniters can be ignited separately.

27. The assembly of claim 26 wherein the grain is a first grain element, wherein the assembly includes a second grain element spaced apart from and on a side of a line opposite the first grain element to form a first pair of grain elements, wherein the first and second grain elements are substantially symmetrical about the line, wherein the assembly includes a second pair of grain elements spaced apart with respect to each other and substantially symmetric with respect to each other, and wherein the grain elements in the second pair of grain elements have a size and shape that are not the same as both the size and shape of the first pair of grain elements.

28. A system for producing gas selectively according to a desired pressure and time profile, the system comprising:

a gas-producing grain element;

first and second ignition elements on discretely separate parts of the grain element; and

a control system for controlling the application of ignition pulses to the first and second ignition elements and configured such that the control system can apply selectively ignition pulses separately to each of the separate parts of the grain element.

29. The system of claim 28 wherein the control system is configured to ignite the separate parts of the grain element at different times.

30. A method of generating a gas comprising:

positioning a plurality of gas producing grains having end portions and having at least two grains positioned with respect to each other to provide a channel between the two grains for gas movement from an end portion of a grain to the other end portion of the grain; and

igniting at least one of the grains to produce gas from the grain and allowing the gas to enter the channel.

31. The method of claim 30 wherein the step of igniting at least one of the grains is igniting a first grain, and further including the step of igniting a second grain after igniting the first grain where the second grain is smaller than the first grain.

32. A method of producing a gas comprising:

arranging a plurality of grains so that there are at least two grains shaped and oriented in such a way that they are symmetrical with respect to each other about a line; and

igniting the symmetrical grains in such a way that they are consumed in a manner that is substantially symmetrical with respect to the line.

33. The method of claim 32 wherein a step of arranging includes the step of arranging a plurality of grains in pairs wherein the grains in each pair are substantially symmetrical with respect reach other.

34. The method of claim 33 wherein the step of igniting includes the step of igniting the grains only in pairs.

35. The method of claim 32 wherein the at least two grains are ignited simultaneously.

36. The method of claim 35 wherein the step of igniting the at least two grains simultaneously includes the step of igniting the at least two grains simultaneously at two different points on each grain.

37. The method of claim 32 wherein the step of arranging includes the step of arranging a pair of grains different in at least one of size and shape from the at least two grains, and wherein the step of igniting includes the step of igniting the at least two grains before igniting the pair of grains.

38. The method of claim 32 wherein the step of arranging the at least two grains includes the step of arranging the at least two grains so that they extend from respective first end portions to respective second end portions and wherein the at least two grains are arranged so as to provide a channel between the first and second end portions of at least one grain.

39. A method of producing a gas comprising:

arranging at least one grain for producing a gas within an enclosure and including ignition elements associated with the grain; and

initiating burning of the grain at a point on a surface of the grain and at a point interior to the grain.

40. The method of claim 39 wherein the step of arranging the at least one grain includes the step of arranging a first grain and a second grain within the enclosure and the step of initiating burning includes the step of initiating burning of the second grain before the first grain at only a single ignition point on the second grain.

41. A method of producing a gas comprising:

arranging first and second grains so as to be symmetrical with respect to each other in a first pair of grains and arranging third and fourth grains so

as to be symmetrical with respect to each other in a second pair of grains and arranging the grains in the first and second pairs so as to provide a passage between the grains; and

igniting the first pair of grains before igniting second pair of grains.

42. The method of claim 41 wherein the step of arranging includes the step of arranging the first and second grains where the first and second grains are larger than the grains in the second pair of grains, and wherein the step of igniting the first pair of grains includes the step of igniting the first pair of grains at only one point on each of the grains, the grains in the second pair of grains are ignited at more than one point on each of the grains and wherein the grains in the second pair of grains are ignited at opposite ends of each of the grains.